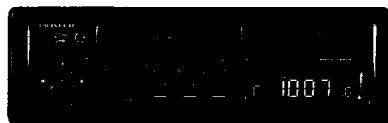


Service Manual

PIONEER
The Art of Entertainment

KEH-1400/X1M/UC



ORDER NO.
CRT1798

HIGH POWER CASSETTE PLAYER WITH FM/AM TUNER

KEH-1400

X1M/UC

KEH-1450

X1M/ES

KEH-1311

X1M/UC

KEH-1100

X1M/UC

KEH-1150

X1M/ES

HIGH POWER CASSETTE PLAYER WITH FM/MW/LW TUNER

KEH-1300

X1M/EW

KEH-1300SDK

X1M/GR

KEH-1400

X1M/IT

NOTE:

- See the separate manual CX-644(CRT1800) for the cassette mechanism description.
- The cassette mechanism assy employed in this model is one of X-2M series.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- For the service mentioned in this manual, the special tools GGD1056 and GGD1100 have to be used.
See the sections "Adjustment" on how to use these tools.

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1. SAFETY INFORMATION

● KEH-1400/X1M/UC,1311/X1M/UC,1100/X1M/UC

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

2. SPECIFICATIONS

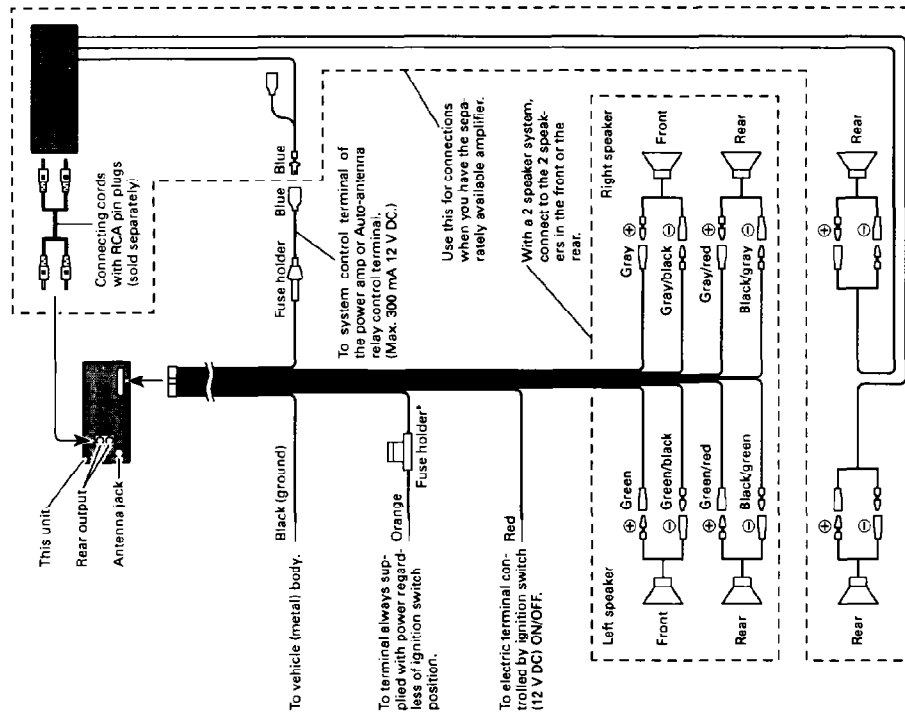
General	
Power source.....	14.4 V DC (10.8 — 15.1 V allowable)
Grounding system.....	Negative type
Max. current consumption	
KEH-1400, 1450, 1311, 1300, 1300SDK.....	7.5 A
KEH-1100, 1150.....	6.0 A
Dimensions (DIN) (mounting size).....	
(nose).....	178 (W) × 50 (H) × 150 (D) mm
(D) (mounting size).....	17 (W) × 2 (H) × 5.78 (D) in.
(nose).....	188 (W) × 58 (H) × 19 (D) mm
(D) (mounting size).....	7.1 (W) × 2.3 (H) × 0.74 (D) in.
(nose).....	178 (W) × 50 (H) × 155 (D) mm
(D) (mounting size).....	17 (W) × 2 (H) × 6.18 (D) in.
(nose).....	170 (W) × 48 (H) × 14 (D) mm
(D) (mounting size).....	6.7 (W) × 1.9 (H) × 0.55 (D) in.
Weight.....	1.1 kg (2.4 lb.)
Amplifier	
Continuous power output is 14 W (10 W for KEH-1100) per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	
KEH-1400, 1450, 1311, 1300, 1300SDK.....	30 W × 4
KEH-1100, 1150.....	22 W × 4
Load impedance.....	4 Ω (4 — 8 Ω allowable)
Preout output level/output impedance.....	500 mV/1 kΩ
Tone controls (bass) KEH-1400, 1311, 1100, 1300, 1300SDK.....	±12 dB (100 Hz)
(bass) KEH-1450, 1150.....	+8 dB — -16 dB (100 Hz)
(treble).....	±12 dB (10 kHz)
Loudness contour.....	+10 dB (100 Hz), +7 dB (10 kHz) (Volume: -30 dB)
Tape player	
Tape.....	Compact cassette tape (C-30 — C-90)
Tape speed.....	4.76 cm/sec. (±0.14 cm/sec.) (1.78 ips.)
Fast forward/rewind time.....	Approx. 90 sec. to C-60
Wow & flutter.....	0.13% (WRMS)
Frequency response	
KEH-1400, 1450, 1300, 1300SDK.....	40 — 17,000 Hz (±3 dB)
KEH-1311, 1100, 1150.....	40 — 14,000 Hz (±3 dB)
Stereo separation.....	Meta: Dolby B NR IN: 63 dB (IHF-A network)
Signal-to-noise ratio.....	Dolby NR OUT: 55 dB (IHF-A network)
KEH-1400, 1450, 1300, 1300SDK.....	52 dB (IHF-A network)
KEH-1311, 1100, 1150.....	52 dB (IHF-A network)
FM tuner (KEH-1400/UC, 1311, 1100)	
Frequency range.....	87.9 — 107.9 MHz
Usable sensitivity.....	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity.....	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio.....	70 dB (IHF-A network)
Distortion.....	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response.....	30 — 15,000 Hz (±3 dB)
Stereo separation.....	40 dB (at 65 dBf, 1 kHz)
Selectivity.....	70 dB (2ACA)
Three-signal intermodulation (desire signal level).....	50 dBf (two undesire signal level: 110 dBf)

FM tuner (KEH-1450, 1150)	
Frequency range.....	87.5 — 108 MHz
Usable sensitivity.....	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity.....	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio.....	70 dB (IEC-A network)
Distortion.....	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response.....	30 — 15,000 Hz (±3 dB)
Stereo separation.....	40 dB (at 65 dBf, 1 kHz)
FM tuner (KEH-1300, 1300SDK, 1400/IT)	
Frequency range.....	87.5 — 108 MHz
Usable sensitivity.....	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity.....	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio.....	70 dB (IEC-A network)
Distortion.....	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response.....	30 — 15,000 Hz (±3 dB)
Stereo separation.....	40 dB (at 65 dBf, 1 kHz)
MW tuner (KEH-1300, 1300SDK, 1400/IT)	
Frequency range.....	531 — 1,602 kHz
Usable sensitivity.....	18 μV (25 dB) (S/N: 20 dB)
Selectivity.....	50 dB (±3 kHz)
LW tuner (KEH-1300, 1300SDK, 1400/IT)	
Frequency range.....	153 — 281 kHz
Usable sensitivity.....	30 μV (30 dB) (S/N: 20 dB)
Selectivity.....	50 dB (±3 kHz)
AM tuner (KEH-1450, 1150)	
Frequency range.....	531 — 1,602 kHz (9 kHz)
Usable sensitivity.....	530 — 1,710 kHz (10 kHz)
Selectivity.....	18 μV (25 dB) (S/N: 20 dB)
AM tuner (KEH-1400/UC, 1311, 1100)	
Frequency range.....	530 — 1,710 kHz
Usable sensitivity.....	18 μV (25 dB) (S/N: 20 dB)
Selectivity.....	50 dB (±10 kHz)

Note:
Specifications and design are subject to possible modification without notice due to improvements.

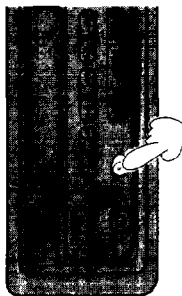
3. OPERATIONS AND CONNECTION

Connection Diagram



Adjusting Volume and Tone

Mode Selection

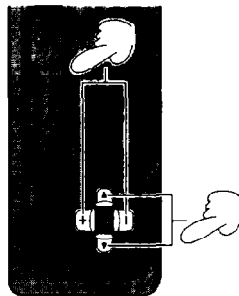


Each press of the [S] button changes the mode as follows.

Fader adjustment (F): → Tone adjustment (T) → Volume adjustment (V):

- Fader, Balance, Treble and Bass settings stop temporarily at the center position.
- If no operations are performed within 8 seconds, adjustment modes are cancelled. Make adjustments within 8 seconds.

Fader/Balance



Press the [◀] or [▶] button when in the Fader mode, and the Balance mode "B:" is indicated in the display. Press the [+] or [-] button when in the Balance mode, and the display changes to "F:" indicating that you have switched to the Fader mode.

Fader



[+]: Shifts the sound toward the front speakers.

[-]: Shifts the sound toward the rear speakers.

(Display shows "F:F9" ~ "F:R9")

- Please set to "F:0" when using a 2 speaker system.

Balance



[▶]: Shifts the sound toward the right speakers.

[◀]: Shifts the sound toward the left speakers.

(Display shows "B:L9" ~ "B:R9")

Using the Tape Deck

To Change Sides



Press the [◀◀] and [▶▶] buttons at the same time.

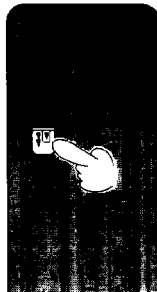
Fast Forward/Rewind

Fast forward



Press the button for the same direction as the tape play indicator.

Rewind



Press the button for the opposite direction as the tape play indicator.

- To release fast forward/rewind, lightly press the [◀◀] or [▶▶] button located on the opposite side of the one you pressed to fast forward or rewind.
- ◀◀ ▶▶ "flashes when the tape is fast forwarding or rewinding.

KEH-1400, 1450, 1311, 1100, 1150, 1300, 1300SDK

Bass/Treble



Press the [◀] button when in the Treble mode, and the Bass mode "B:" is indicated in the display. Press the [▶] button when in the Bass mode, and the display changes to "T:" indicating that you have switched to the Treble mode.

Adjusting Bass/Treble



[+]: Boosts
[-]: Attenuates
(When in the Treble mode, the display shows "T:-6" ~ "T: 6". When in the Bass mode, it shows "B:-6" ~ "B: 6".)

Volume



Pressing the [+/-] button increases the volume, while the [-] button decreases it. (Display shows "V: 0" ~ "V: 31".)
• When driving your vehicle, be sure to keep the volume of the unit set low enough to allow you to hear sounds coming from outside.

Loudness

This function enhances both the high and low ranges of sound to give even more power to output at low volume.

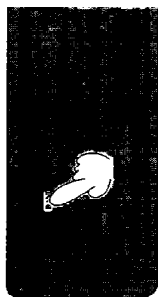
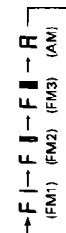


Press the [S] button for 2 seconds to turn Loudness ON/OFF.
"LOUD" appears in the display when the Loudness function is turned ON.
"LOUD" goes out when the Loudness function is turned OFF.

Using the Radio

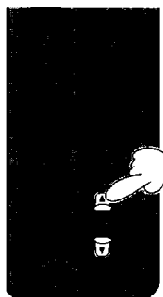
Selecting a Band

Press the [BAND] button to select a band.



Seek Tuning

[◀]: Automatically selects a lower frequency station.
[▶]: Automatically selects a higher frequency station.
("SEEK" lights in the display.)



Manual Tuning

1.

Press both [◀] and [▶] buttons at same time.
("SEEK" goes out from the display.)

- Each time you repeat this operation, "SEEK" either lights or goes out.



2.

[◀]: Use to select lower frequencies.
[▶]: Use to select higher frequencies.
Continue pressing the button to move up or down continuously through frequencies.

- Tuning moves up or down in 0.2 MHz steps for FM, 10 kHz steps for AM.



4. DISASSEMBLY

● Removing the Case (not shown)

- 1.Insert and turn a flat screwdriver at locations indicated by arrows to remove the case.

● Removing the Cassette Mechanism Unit (not shown)

- 1.Remove the four screws.
- 2.Disconnect the connector.
- 3.Remove the cassette mechanism unit.

● Removing the Detach Grille Assy (Fig. 1)

- 1.Disconnect the three stoppers indicated by arrows.
- 2.Remove the detach grille assy.

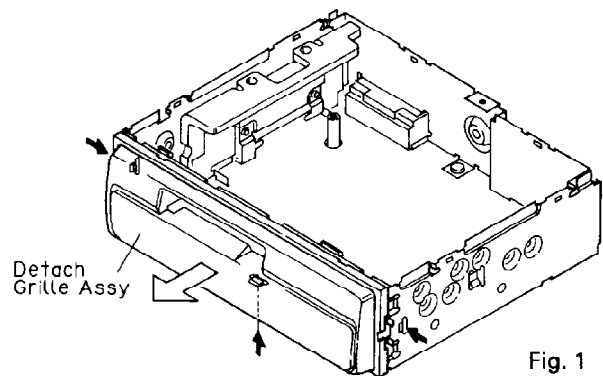


Fig. 1

● Removing the Chassis Unit (Fig. 2)

- 1.Remove the two screws A, two screws B and one screw C.
- 2.Unbend the tabs at three locations indicated by arrows.
- 3.Remove the chassis unit.

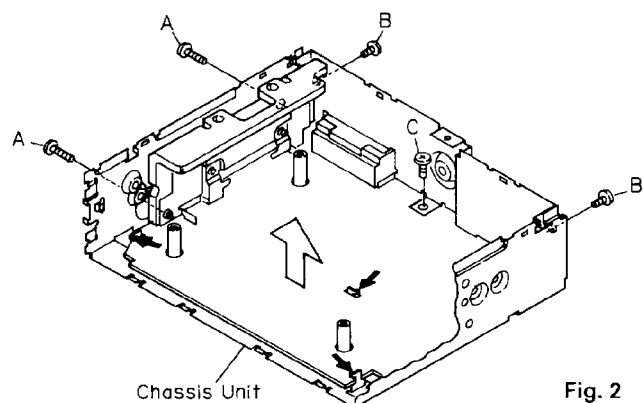


Fig. 2

5. ADJUSTMENT

● Connection Diagram

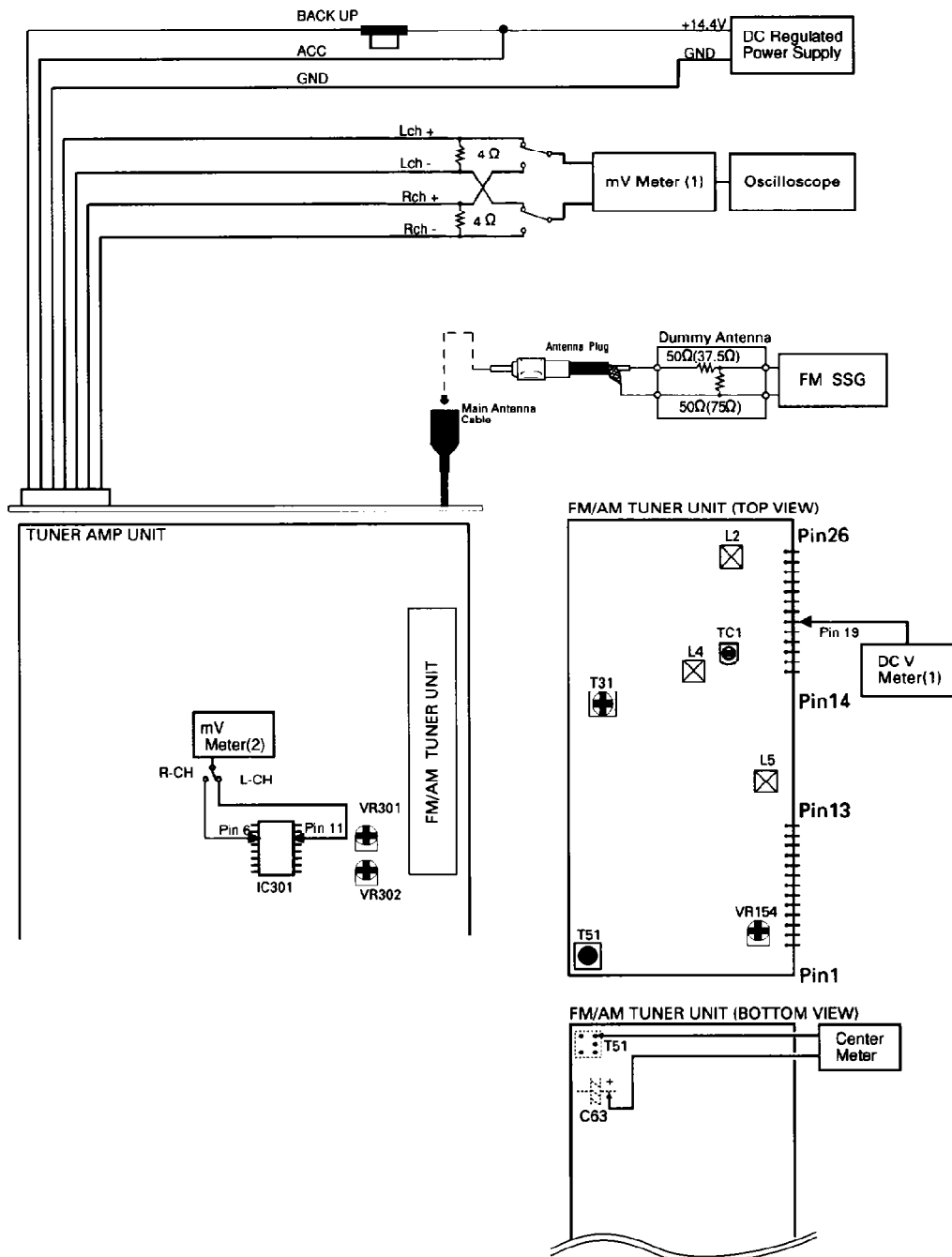


Fig. 3

- For Repair of the Key Board Unit, Use the Extension-Cord Tool GGD1056.
- For Repair of the Cassette Mechanism Unit, Use the Extension-Cord Tool GGD1100.

FM ADJUSTMENT

Modulation M: MONO MOD., 400Hz 30%(22.5kHz Dev.)

S: STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE: Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

(KEH-1400/X1M/UC, 1311/X1M/UC, 1100/X1M/UC)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	107.9	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

(KEH-1300/X1M/EW, 1300SDK/X1M/GR, 1400/X1M/IT)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
Image	1	129.3 M	60-80	107.9	TC1	mV Meter(1) : Minimum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

(KEH-1450/X1M/ES, 1150/X1M/ES)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

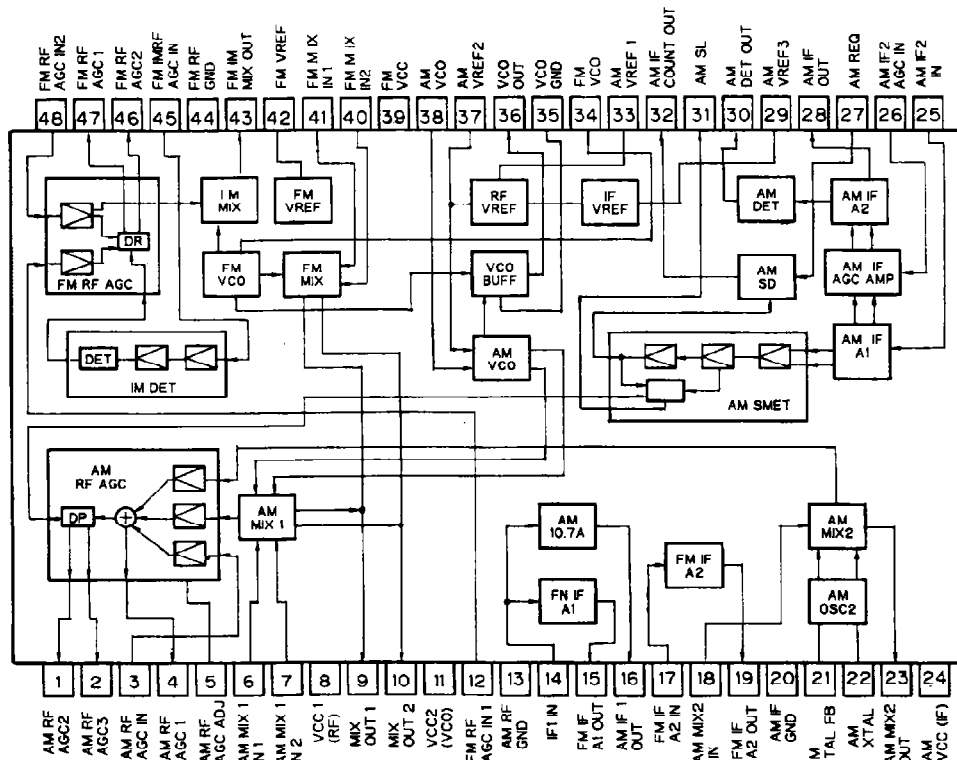
DOLBY NR ADJUSTMENT

(KEH-1400/X1M/UC, 1450/X1M/ES, 1300/X1M/EW, 1400/X1M/IT, 1300SDK/X1M/GR)

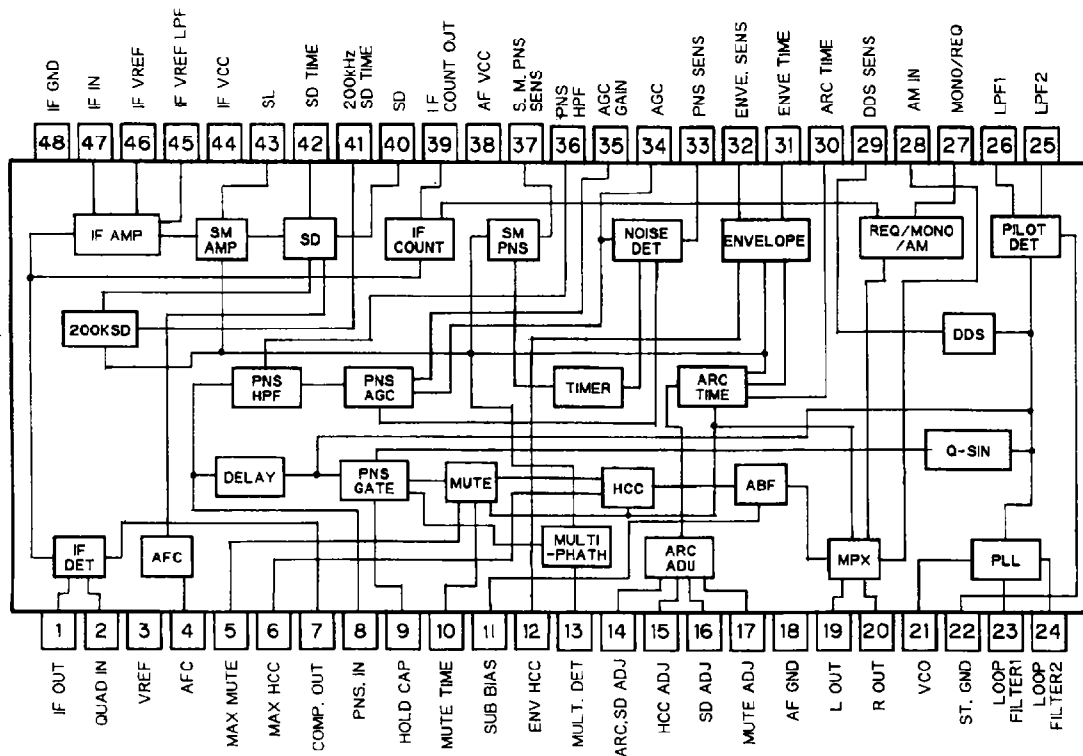
Test Tape	Adjustment Point	Adjustment Method (Switch Position)
NCT-150 (400Hz, 200nwb/m)	VR301(Lch), VR302(Rch)	mV Meter(2) : -8.2dBs ± 1dB (DOLBY NR Switch : OFF)

6. IC INFORMATION

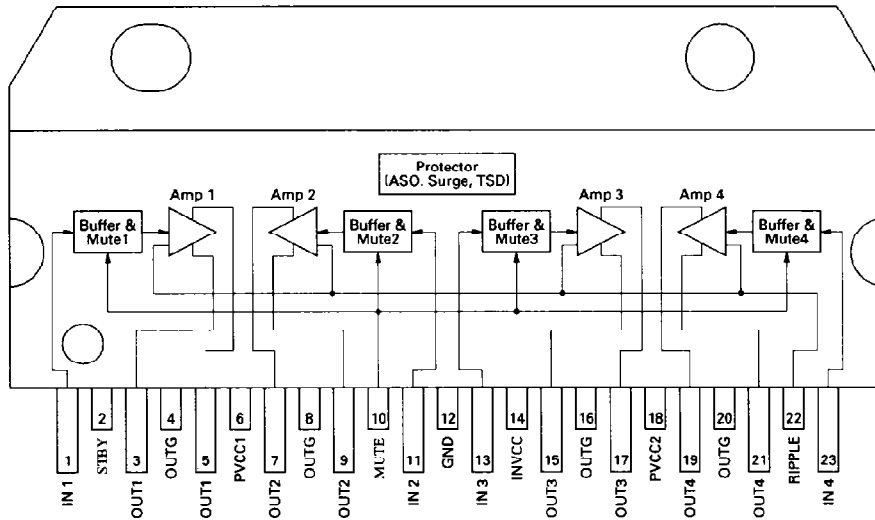
PA4023A



PA4024A



HA13150A



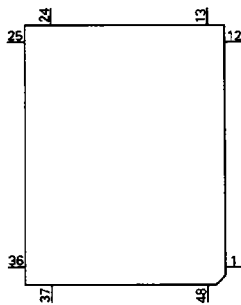
● Pin Functions (PDC015C)

Pin No.	Pin Name	I/O	Function and Operation
1-4	NC		Not used
5-8	KST4-KST1	O	Key strobe 4-1
9-12	KD4-KD1	I	Matrix key return 4-1
13	NC		Not used
14	SCK	I/O	Clock input terminal for serial data input and output
15	SO	I/O	Key data output
16	SI	I	Display data input
17	RES	I	Reset input
18	TEST	I	Test input
19	OSC-IN	I	System clock input
20	OSC-OUT	O	System clock output
21	VSS		GND
22,23	VDD2,VDD1		LCD power supply 2,1
24	VDD		Power supply
25-28	COM1-4	O	LCD common signal 1-4
29-42	SEG1-14	O	LCD segment signal 1-14
43-48	NC		Not used

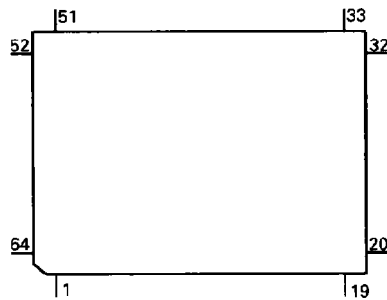
IC's marked by* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

*PDC015C



*PDR025A



● Pin Functions (PDR025A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	MCMUT	I	C	Mechanism mute request
2	TAPLD	I	C	Tape loading input
3	EO	O	C	Error output
4	VDD1			Power supply
5	GND			GND
6	VCOIN	I		AM/FM VCO IN
7	ASENS	I		ACC power sense input
8	VDD2			Power supply
9	LCK	O	C	Clock output(Key & display microcomputer)
10	LDT	O	C	Data output(Key & display microcomputer)
11	LDI	I	C	Data input(Key & display microcomputer)
12	FMSD	I		FM SD input
13	AMIF	I		AM IF signal input
14	SL	I		Signal level input
15	ST	I		Stereo input
16	SK	I	C	SK signal input
17	DK	I	C	DK signal input
18	SWVDD	I	C	Grille power supply control
19	PEE	O	C	Beep tone output
20	VST	O	C	Strobe pulse output for electronic volume
21	VCK	O	C	Clock output for electronic volume
22	VDI	O	C	Data output for electronic volume
23	NC			Not used
24	XOUT	O	C	Crystal oscillating element connection pin
25	XIN	I		Crystal oscillating element connection pin
26	GND			GND
27-30	NC			Not used
31	TESTIN	I	C	Test program mode input
32	DSSENS	I	C	Grille detach sense input
33,34	GND			GND
35-38	NC			Not used
39	MUTE	O	C	System mute output
40	DKOUT	O	C	DK interrupt output
41	ILLPW	O	C	Not used
42	AUTANT	O	C	Not used
43	SYSPW	O	C	System power supply control output
44-46	NC			Not used
47	NR	O	C	NR output
48	MTL	O	C	METAL output
49	MS	O	C	Cassette mechanism MS sense output
50	MECPW	O	C	Cassette mechanism power
51	AMPW	O	C	AM power control output
52	LOCL	O	C	LOC "L" set up
53	LOCH	O	C	LOC "H" set up
54	FMPW	O	C	FM power control output
55	SEEK	O	C	Seek output
56	MONO	O	C	Forced mono output
57	LW	O	C	LW output
58	GND			GND
59-62	DM3-DM0	I		Destination • function input
63	NOR/REV	I	C	Tape running input
64	DM4	I		Not used

Format	Meaning
C	C MOS

7. LCD

● CAW1377

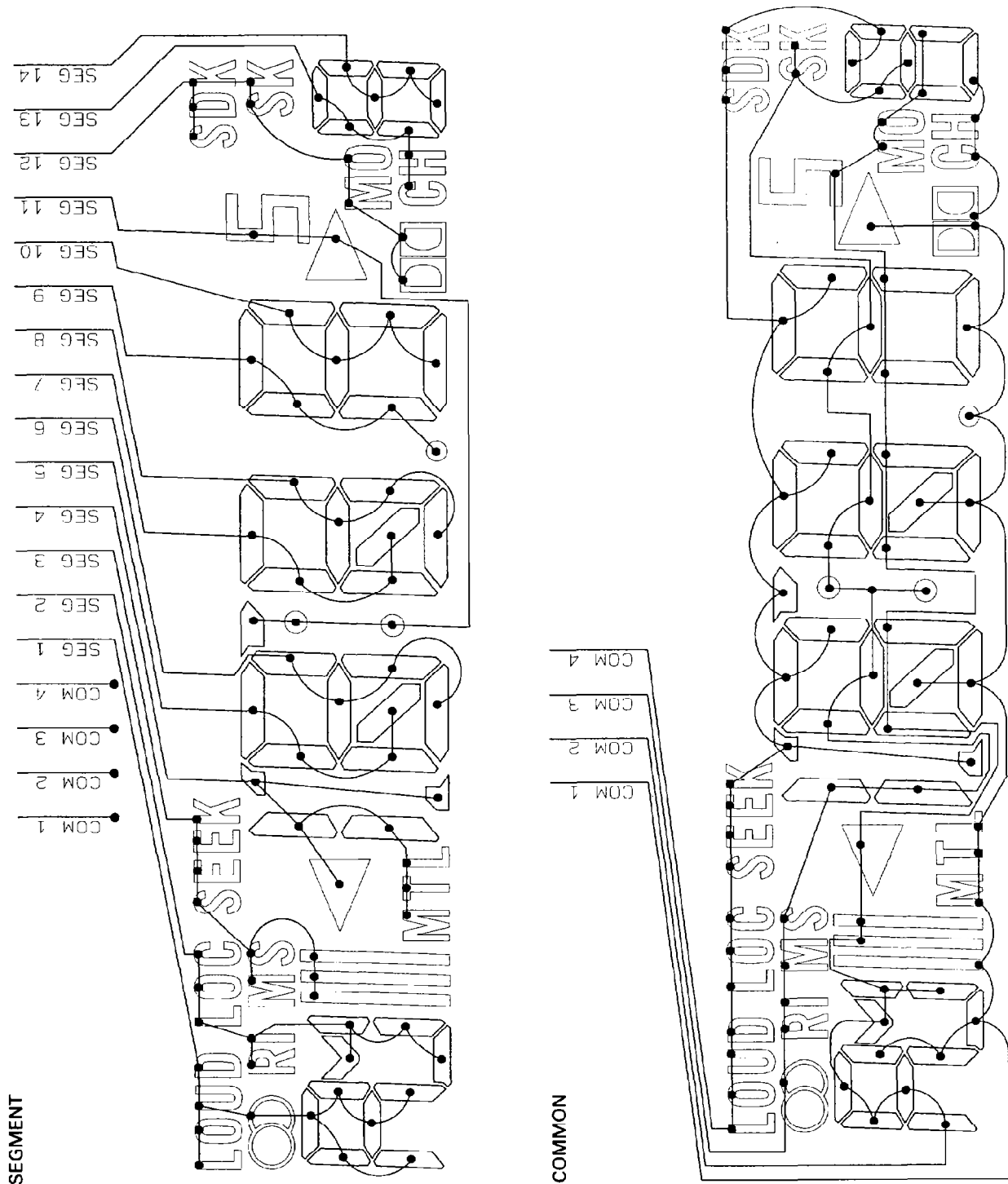


Fig. 4

KEH-1400,1450,1311,1100,1150,1300,1300SDK

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
C 311 312 513 515 520 521	CKSQYB223K25	D 231	SVC253
C 401	CKSQYB562K50	L 2 4	CTC1108
C 402	CCSQCH330J50	L 3	LCTB2R2K2125
C 404	CKSYB823K50	L 5	CTC1107
C 459 460 465 466 483 851 852	CEA100M16LL	L 51	LAU150K
C 461 462	CKSQYB822K50	L 201	Ferri-Inductor LAU4R7K
C 467 468	CKSQYB152K50	L 202	Ferri-Inductor LAU330K
C 469 470	CKSQYB183K25	L 203	Inductor CTF1287
C 471 472 501 510 589 590 591 592 609 953	CKSQYB102K50	L 208	Inductor LAU121K
C 473 474 484	CEA2R2M50LL	L 231	Inductor LAU3R3J3225
C 477 478 508 509 512 963 964	CCSQCH101J50	T 31	Coil CTE1116
C 485	CKSQYB332K50	T 51	Coil CTC1136
C 487	CKSYB104K16	CF 51 52 53	Ceramic Filter CTF1290
C 489 504 506 511 958	CKSQYB103K25	CF 232	Ceramic Filter CTF1348
C 502 525	CKSYB473K16	X 151	Ceramic Resonator 920.5kHz CSS1365
C 503	4.7μF/16V CCH1005	X 231	Crystal Resonator 10.26MHz CSS1111
C 516 526 607	CKSQYB473K16	VR 154	Semi-fixed 68kΩ(B) CCP1211
C 541	CCSQCH100D50		
C 570	CEAS100M16		
C 571	CEAS330M10		
C 572 573	CKSQYB104K25		
C 601	CCSQCH110J50		
C 602	CCSQCH100D50		
C 611	CKSYB103K25		
C 951	3300μF/16V CCH1018		
C 952	CEAS331M16		
C 957 959	330μF/10V CCH1181		
C 960	CEA101M16LL		
Unit Number : CWM4585			
Unit Name : Key Board Unit(KEH-1400/X1M/UC, 1400/X1M/IT, 1450/X1M/ES,1150/X1M/ES)			
MISCELLANEOUS			
IC 901	PDC015C		
D 901	MA151WK		
D 902	MA151WA		
D 903	MA110		
L 901	Ferri-Inductor LAU150K		
S 901 902 903 904 905 906 907 908 909 910	CSG1055		
S 911 912 913 914 915 916	CSG1055		
IL 901 902 903	Lamp 14V 65mA CEL1470		
LCD 901	LCD CAW1377		
RESISTORS			
R 901 902	RS1/10S222J		
R 903 904 905 906 907 908 909 910 911 912	RS1/10S471J		
R 913	RS1/10S682J		
R 917	RS1/10S472J		
R 946	RS1/10S473J		
CAPACITORS			
C 901	CEA100M16LL		
C 902 903	CKSQYB103K25		
C 904	CCSQCH181J50		
C 905	CKSQYB104K16		
Unit Number : CWE1417			
Unit Name : FM/AM Tuner Unit(KEH-1400/X1M/UC,1450/X1M/ES, 1311/X1M/UC,1100/X1M/UC,1150/X1M/ES)			
MISCELLANEOUS			
IC 1	PA4023A		
IC 2	PA4024A		
Q 1 31 202	2SC2412KLN		
Q 2 203	DTC124EU		
Q 3	3SK263		
Q 201	2SK932		
D 1 2	RD39JS		
D 4	1SV251		
D 5 7 8	KV1410		
D 6 201 202	MA157		

KEH-1400,1450,1311,1100,1150,1300,1300SDK

-----Circuit Symbol & No. Part Name-----	Part No.
R 240	RS1/16S332J
H 241	RS1/16S202J
R 243	RS1/16S183J
R 244	RS1/16S472J
CAPACITORS	
C 1	CCSQCH060D50
C 2	CCSRCH020C50
C 4	CCSRCH820J50
C 6	CCSRCH820J50
C 8 18 25 31 52 59 62 105 107 213	CKSRYB103K25
C 9 34 56 152 160 241	CKSQYB104K16
C 10	CCSRCH0R5C50
C 11	CFA010M50I1
C 12 13 17 19 20	CKSRYB222K50
C 14	CCSRCH220J50
C 15	CCSRCH060D50
C 16	CCSRCH080D50
C 21	CEA100M16LL
C 22	CCSRTH090D50
C 23	CCSRTH120J50
C 24	CCSRCH471J50
C 26	CCSRCH101J50
C 32	CKSQYB472K50
C 33	CCSRCH050C50
C 36	CCSRRH201J50
C 51	CKSRYB223K25
C 54	CCSRCH470J50
C 55	CKSQYB223K25
C 57	CKSRYB472K50
C 58 234	CEA330M10LL
C 60	CKSRYB102K50
C 61	CKSRYB102K50
C 63	CEA22M50LL
C 101	CEA100M10NPLL
C 102	CKSRYB182K50
C 103	CKSRYB682K25
C 104	CEA2R2M50LL
C 106	CCSRCH151J50
C 151	CKSRYB472K50
C 153 157	CEA3R3M50LL
C 154	CKSQYB104K16
C 158	CKSYB474K16
C 159	CEA220M6R3LL
C 161 209	CKSQYB104K16
C 162	CEA3R3M50LL
C 163	CKSRYB102K50
C 170 202	CCSRCH100D50
C 201 250	CCSRCH471J50
C 203 235	CKSRYB332K50
C 204 205 236 244	CKSQYB473K16
C 206 233	CKSQYB104K16
C 207	CCSRCH560J50
C 211	CCSRCH101J50
C 212	CEA470M6R3LL
C 216	CCSRCH101J50
C 217	CEA1R5M50LL
C 219	CCSRCH471J50
C 220 230	CKSRYB103K25
C 231	CCSRCH330J50
C 232	CCSRCH150J50
C 237	CCSRCH180J50
C 239	CKSRYB472K50
C 240 242	CEA47M50LL
C 243	CEA33M50LL
C 245	CKSRYB183K25
C 246	CKSQYB473K16

====Circuit Symbol & No. Part Name=====	Part No.
Unit Number :	
Unit Name : Cassette P.C.Board(KEH-1400/X1M/UC,1450/X1M/ES,1300/X1M/EVW,1300SDK/X1M/GR,1400/X1M/IT,1311/X1M/UC)	
D 1	1SR-35-100A
S 1	Switch(Load) ESN1016
S 2	Switch(Mute) ESN1017
S 3	Switch(FWD/REV) ESH1006
Miscellaneous Parts List	
M 1	Motor Unit EXA1444
HD 1	Head Assy EXA1443
SO 1	Solenoid EXP1012
Unit Number :	
Unit Name : Cassette P.C.Board(KEH-1100/X1M/UC,1150/X1M/ES)	
S 1	Switch(Load) ESN1016
S 2	Switch(Mute) ESN1017
S 3	Switch(FWD/REV) ESH1006
Miscellaneous Parts List	
M 1	Motor Unit EXA1444
HD 1	Head Assy EXA1443

- The KEH-1300/X1M/EW, KEH-1300SDK/X1M/GR, KEH-1400/X1M/IT, KEH-1450/X1M/ES, KEH-1311/X1M/UC, KEH-1100/X1M/UC and KEH-1150/X1M/ES Tuner Amp Unit Parts Lists enumerate the parts which differ from those enumerated in the KEH-1400/X1M/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-1400/X1M/UC Tuner Amp Unit Parts List is given on page 14.

Tuner Amp Unit

Circuit Symbol & No.	1400/X1M/UC Part No.	1450/X1M/ES Part No.	1311/X1M/UC Part No.	1100/X1M/UC Part No.	1150/X1M/ES Part No.
IC301	HA12134AF	HA12134AF	.....	.....	.....
IC401	AN6263N	AN6263N	AN6263N	.....	.....
IC551	HA13150A	HA13150A	HA13150A	PA3029B	PA3029B
VR301,302	CCP1209	CCP1209	.....	.....	.....
Q301,302	DTC114TS	DTC114TS	.....	.....	.....
Q401	DTC114ES	DTC114ES	DTC114ES	.....	.....
R301,302	RD1/4PU272J	RD1/4PU272J	.....	.....	.....
R303,304	RD1/4PU332J	RD1/4PU332J	.....	.....	.....
R305,306,309	RD1/4PU104J	RD1/4PU104J	.....	.....	.....
R307	RD1/4PU223J	RD1/4PU223J	.....	.....	.....
R308	RD1/4PU183J	RD1/4PU183J	.....	.....	.....
R401,402	RD1/4PU822J	RD1/4PU822J	RD1/4PU822J	.....	.....
R403	RD1/4PU100J	RD1/4PU100J	RD1/4PU100J	.....	.....
R404	RD1/4PU684J	RD1/4PU684J	RD1/4PU684J	.....	.....
R465,466	RD1/4PU223J	RD1/4PU223J	RD1/4PU333J	RD1/4PU333J	RD1/4PU333J
R601	.....	.....	RD1/4PU472J	.....	.....
R602	.....	.....	.....	RD1/4PU472J	RD1/4PU472J
R604	.....	RD1/4PU472J	.....	.....	RD1/4PU472J
R631	RD1/4PU472J	.....	RD1/4PU472J	RD1/4PU472J	.....
C301,302,304	CEA010M50LL	CEA010M50LL	.....	.....	.....
C305,306	CKSQYF224Z25	CKSQYF224Z25	.....	.....	.....
C307,308	CKSQYB104K16	CKSQYB104K16	.....	.....	.....
C309	CEA4R7M16LS2	CEA4R7M16LS2	.....	.....	.....
C310	CEA4R7M35LL	CEA4R7M35LL	.....	.....	.....
C311,312	CKSQYB223K25	CKSQYB223K25	.....	.....	.....
C401	CKSQYB562K50	CKSQYB562K50	CKSQYB562K50	.....	.....
C402	CCSQCH330J50	CCSQCH330J50	CCSQCH330J50	.....	.....
C403	CEA101M10LS	CEA101M10LS	CEA101M10LS	.....	.....
C404	CKSQYB823K25	CKSQYB823K25	CKSQYB823K25	.....	.....

Tuner Amp Unit(1/2)

Circuit Symbol & No.	1400/X1M/UC Part No.	1300/X1M/EW 1400/X1M/IT Part No.	1300SDK/X1M/GR Part No.
IC601	PDR025A	PDR026A	PDR026A
IC701	.....	.....	LA2220
IC702	.....	.....	NJM4558M
X701	.....	.....	CSS1022
Q701	.....	.....	2SC1740S
Q702	.....	.....	DTC124TS
EF951	.....	CCG1003	CCG1003
FM/AM Tuner Unit	CWE1417	CWE1416	CWE1416
R527,528	RD1/4PU162J	RD1/4PU272J	RD1/4PU272J
R604,712	.....	.....	RD1/4PU472J
R631	RD1/4PU472J	RD1/4PU472J	.....
R701	.....	.....	RN1/10SE182D
R702	.....	.....	RN1/10SE473D
R703,714	.....	.....	RD1/4PU473J
R704	.....	.....	RD1/4PU222J
R705,715	.....	.....	RD1/4PU103J
R706	.....	.....	RD1/4PU123J
R707	.....	.....	RD1/4PU684J
R708,719	.....	.....	RD1/4PU153J

Tuner Amp Unit(2/2)

	1400/X1M/UC	1300/X1M/EW 1400/X1M/IT	1300SDK/X1M/GR
Circuit Symbol & No.	Part No.	Part No.	Part No.
R709	RS1/10S682J
R710	RD1/4PU152J
R711	RS1/10S564J
R713	RS1/10S823J
R717,718	RD1/4PU104J
R720	RN1/4PC1600D
C525	CKSYB473K16	CKSYB223K25	CKSYB223K25
C526	CKSQYB473K16	CKSQYB223K25	CKSQYB223K25
C701	CEAS470M10
C702	CEA100M16LL
C703,704	CQMA102J50
C705	CKSQYB222K50
C706,712,715,716	CKSQYB473K16
C707	CKSYB223K25
C708	CEA470M10LL
C709	CEAR33M50LL
C710	CQMA683J50
C711	CEA010M50LL
C713,714	CFTLA473J50
C717,718	CKSQYB102K50

- The KEH-1300/X1M/EW, KEH-1300SDK/X1M/GR, KEH-1311/X1M/UC and KEH-1100/X1M/UC Key Board Unit Parts Lists enumerate the parts which differ from those enumerated in the KEH-1400/X1M/UC, KEH-1400/X1M/IT, KEH-1450/X1M/ES and KEH-1150/X1M/ES Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-1400/X1M/UC, KEH-1400/X1M/IT, KEH-1450/X1M/ES and KEH-1150/X1M/ES Key Board Unit Parts List is given on page 14.

Key Board Unit

	1400/X1M/UC(CWM4585) 1400/X1M/IT(CWM4711) 1450/X1M/ES(CWM4594) 1150/X1M/ES(CWM4597)	1300/X1M/EW(CWM4579) 1300SDK/X1M/GR(CWM4582) 1311/X1M/UC(CWM4588) 1100/X1M/UC(CWM4591)
Circuit Symbol & No.	Part No.	Part No.
IL 901,902,903	CEL1470	CEL1469

- The KEH-1300/X1M/EW, KEH-1300SDK/X1M/GR and KEH-1400/X1M/IT FM/AM Tuner Unit Parts Lists enumerate the parts which differ from those enumerated in the KEH-1400/X1M/UC, KEH-1450/X1M/ES, KEH-1311/X1M/UC, KEH-1100/X1M/UC and KEH-1150/X1M/ES Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-1400/X1M/UC, KEH-1450/X1M/ES, KEH-1311/X1M/UC, KEH-1100/X1M/UC and KEH-1150/X1M/ES FM/AM Tuner Unit Parts List is given on page 14.

FM/AM Tuner Unit

	1400/X1M/UC, 1100/X1M/UC, 1450/X1M/ES, 1150/X1M/ES, 1311/X1M/UC	1300/X1M/EW, 1300SDK/X1M/GR 1400/X1M/IT
	CWE1417	CWE1416
Circuit Symbol & No.	Part No.	Part No.
AR 1	.....	DSP-201M
CF 51,52,53	CTF1290	CTF1292
D 1,2	RD39JS	.....
L 6	.....	LCTBR15K608
Q 154	.....	DTC124EU
Q 165	.....	2SC2412KLN
TC 1	.....	CCL1042
R 1	RS1/16S225J	RS1/16S0R0J
R 2	RS1/16S225J	.....
R 62	RS1/16S273J	RS1/16S393J
R 154	.....	RS1/16S104J
R 163	RS1/16S223J	RS1/16S222J
R 243	RS1/16S183J	RS1/16S123J
R 244	RS1/16S472J	RS1/16S103J
C 15	CCSRCH060D50	.....
C 26	CCSRCH101J50	.....
C 60	CKSRYB102K50	.....
C 63	CEAR22M50LL	CEAR15M50LL
C 245	CKSRYB183K25	CKSRYB123K25



10. CONNECTION DIAGRAM

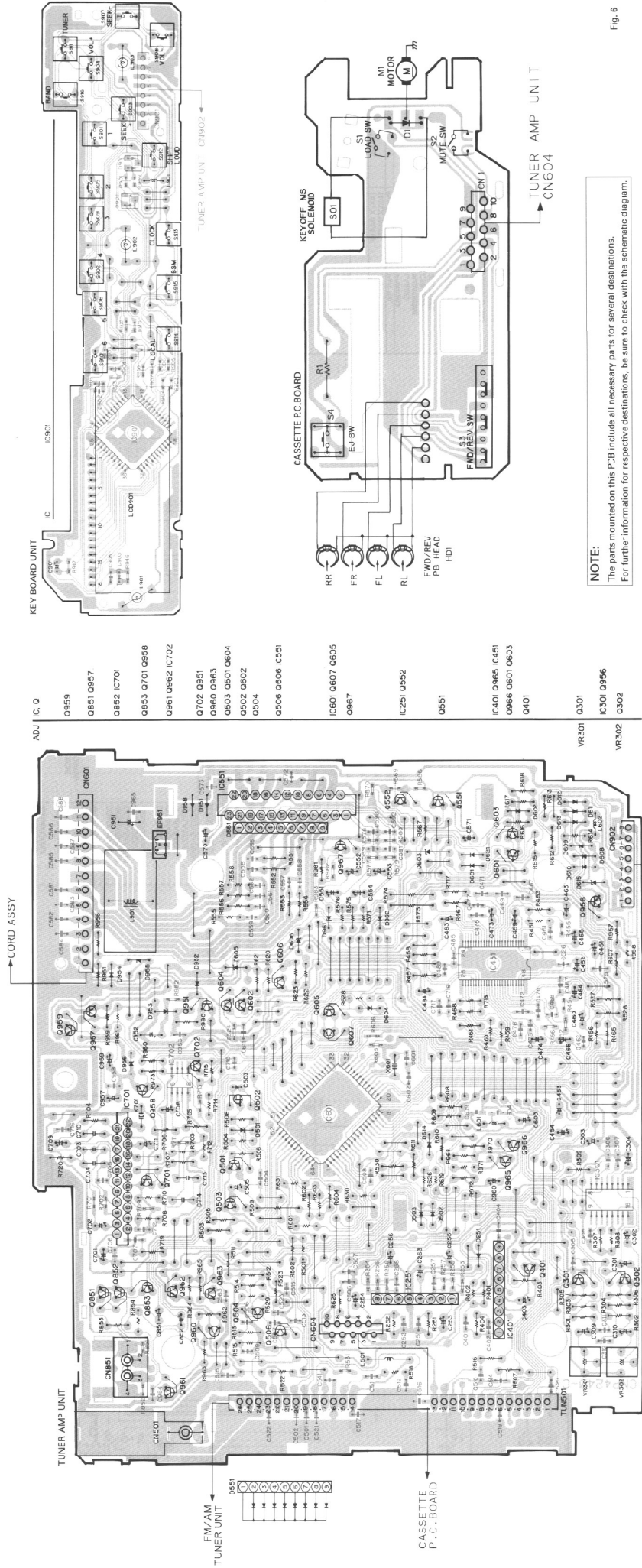


Fig. 6

11. SCHEMATIC CIRCUIT DIAGRAM

TUNER AMP UNIT

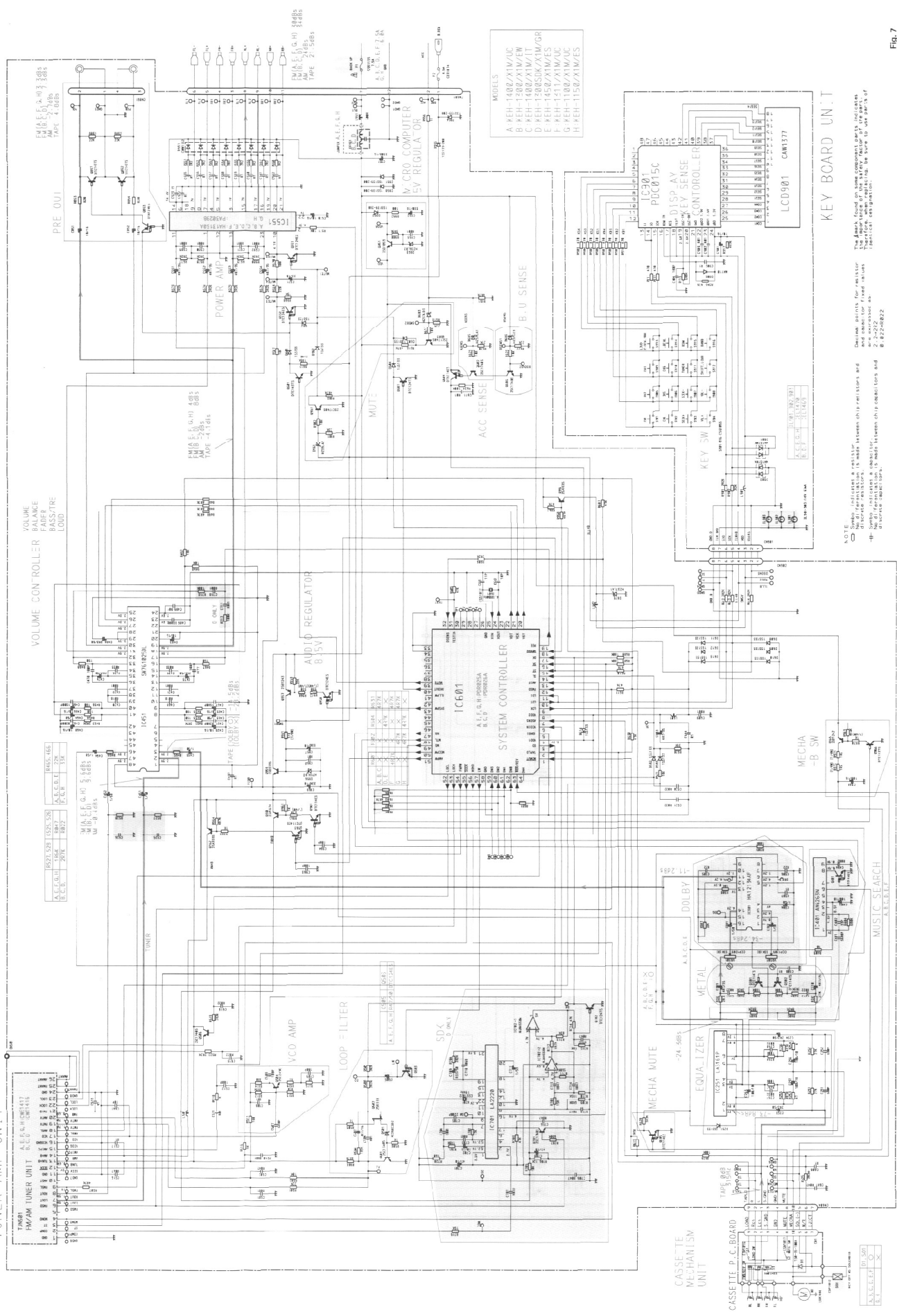
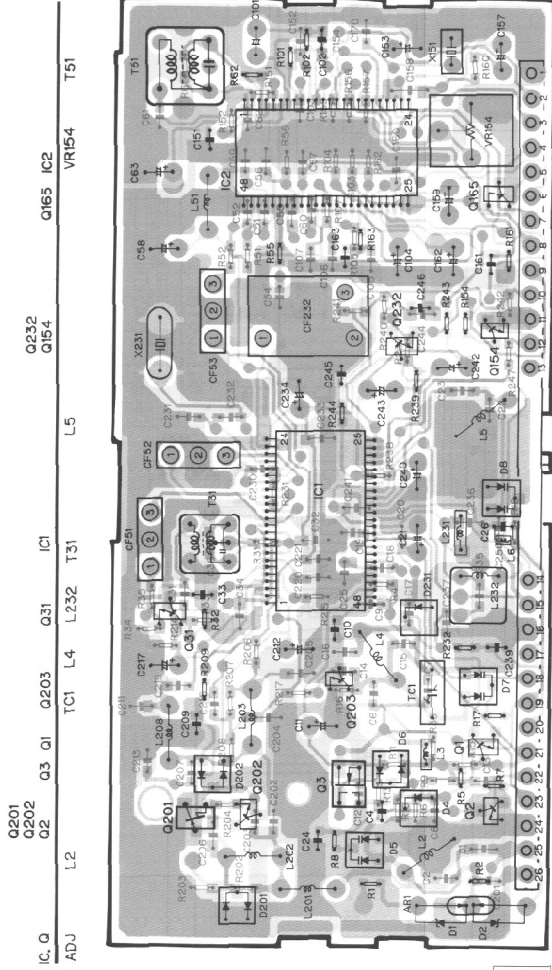


Fig. 7

12. CIRCUIT DIAGRAM AND PATTERN

12.1 FM/AM TUNER UNIT

● Connection diagram



NOTE:
The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

● Circuit diagram
(KEH-1400/X1M/UC, 1450/X1M/ES, 1311/X1M/UC, 1100/X1M/UC, 1150/X1M/ES)

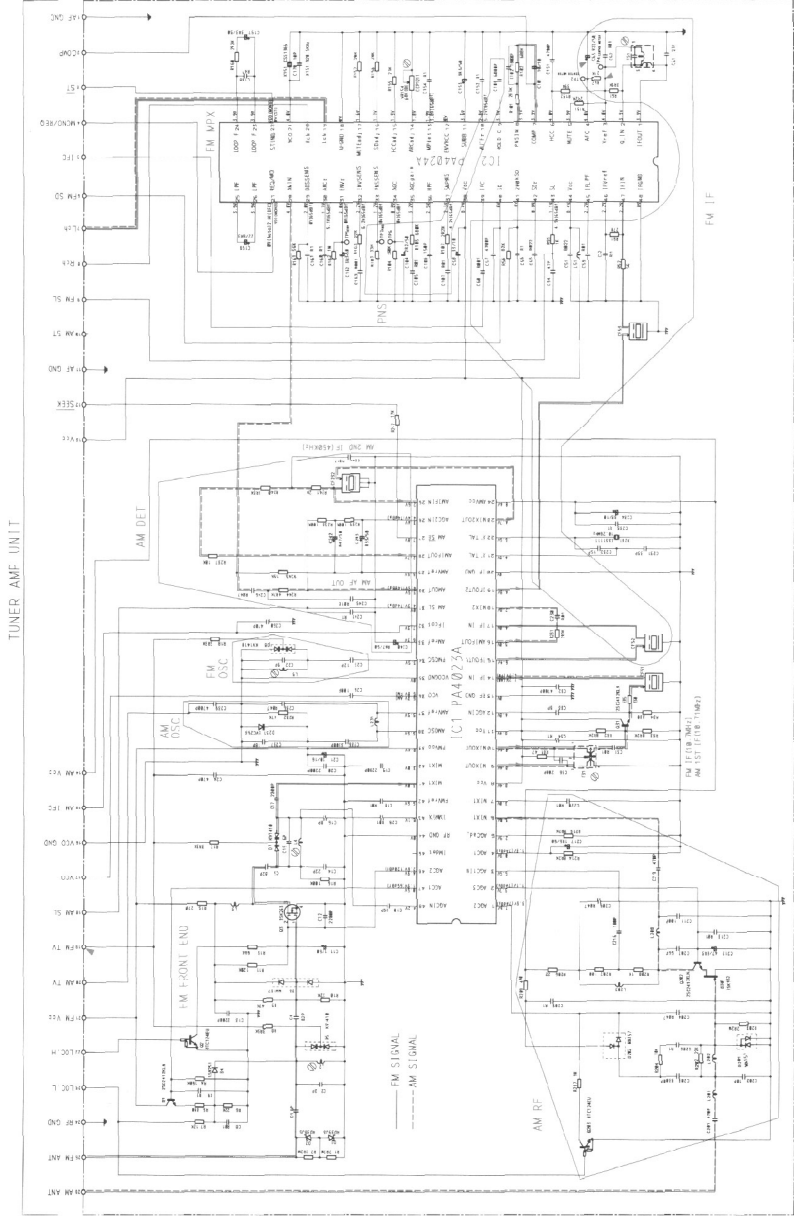


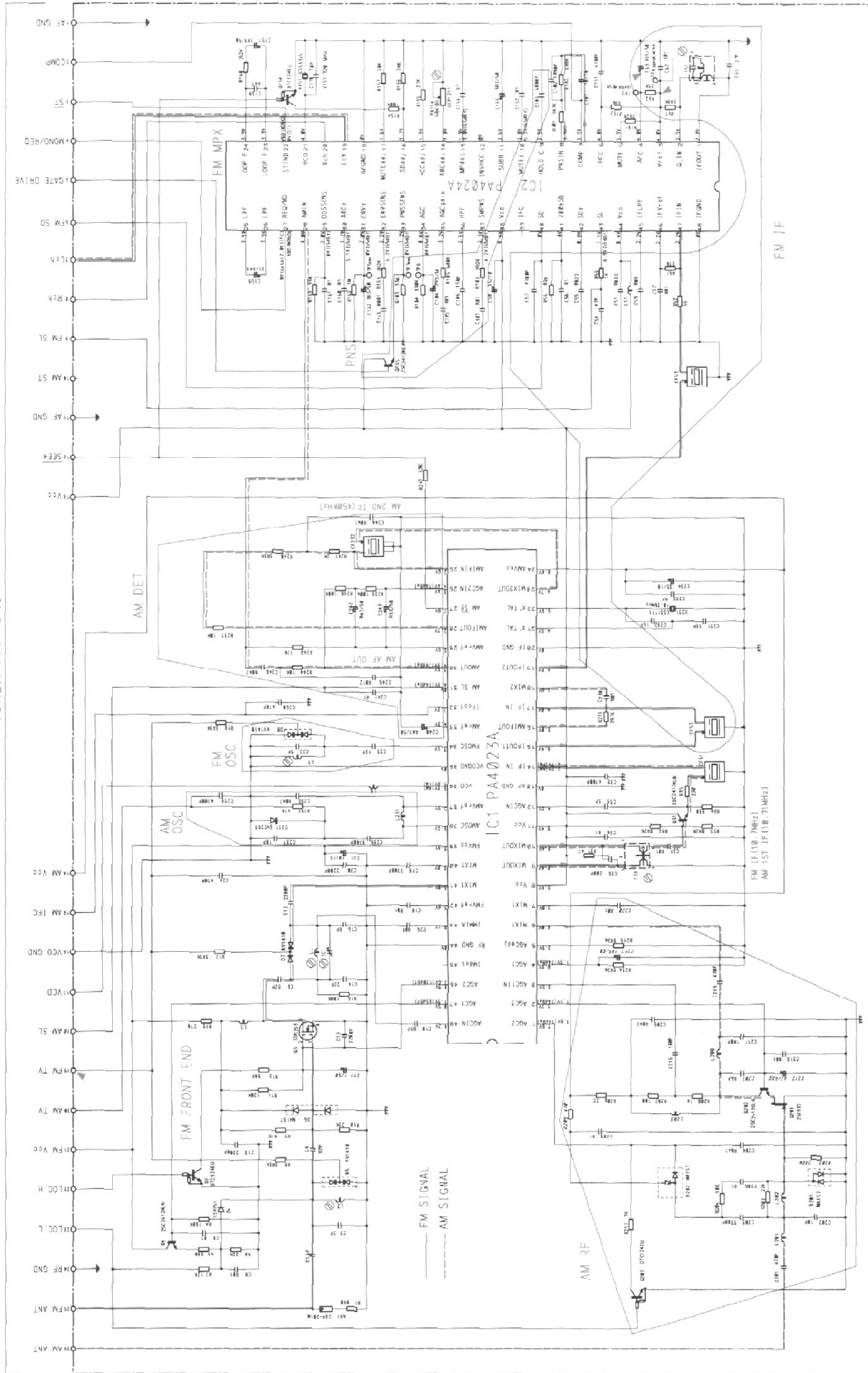
Fig. 9

Fig. 8

● Circuit diagram

(KEH-1300/X1M/EW, 1300SDK/X1M/GR, 1400/X1M/IT)

TUNER AMP UNIT



13. EXPLODED VIEW AND PARTS LIST

13.1 CHASSIS

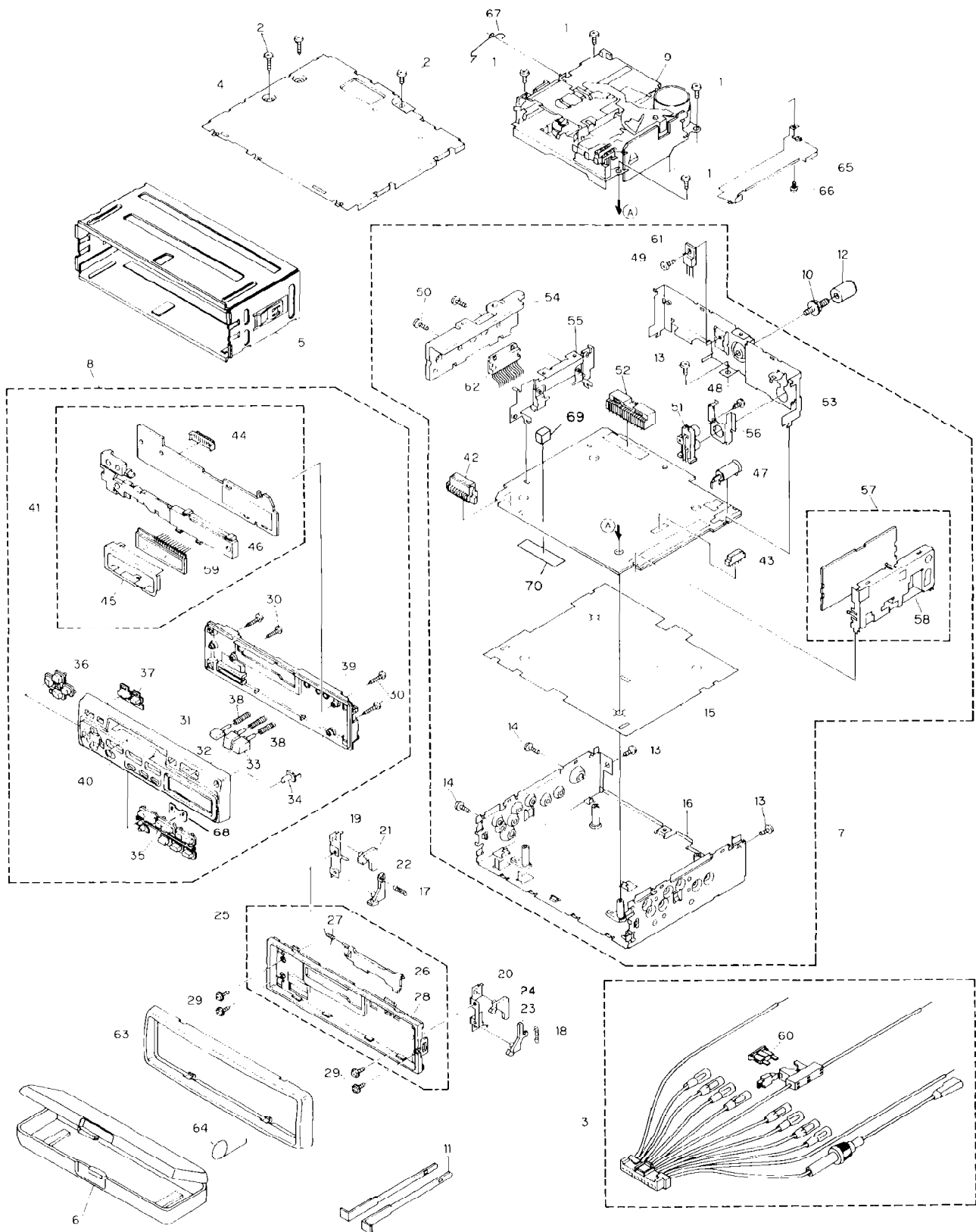


Fig. 11

NOTE:

● Parts marked by “*” are generally unavailable because they are not in our Master Spare Parts List.

● **Parts List(KEH-1400/X1M/UC)**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC	46	Conductor	CNV4442
2	Screw	BSZ30P100FMC	47	Antenna Jack(CN501)	CKX1006
3	Cord Assy	CDE4951	48	Screw	BPZ26P060FMC
4	Case	CNB2010	49	Screw	BSZ26P060FMC
5	Holder	CNC5394	50	Screw	BSZ26P080FMC
6	Detach Case	CNS3860	51	Pin Jack(CN851)	CKB1028
7	Tuner Amp Assy	CWM4583	52	Plug(CN601)	CKM1226
8	Detach Grille Assy	CXA8545	53	Panel	CNB2014
9	Cassette Mechanism Unit	EXK3435	54	Heat Sink	CNC6217
10	Screw	CBA1304	55	Holder	CNC6372
11	Handle	CNC5395	56	Holder	CNC6531
12	Bush	CNV3930	57	FM/AM Tuner Unit	CWE1417
13	Screw	BSZ30P060FMC	58	Holder	CNC6555
14	Screw	BSZ30P100FMC	59	LCD	CAW1377
15	Insulator	CNM4625	60	Auto Fuse(7.5A)	CEK1135
16	Chassis Unit	CXA8558	61	Transistor(Q959)	2SD2395
17	Spring	CBH1834	62	IC(IC551)	HA13150A
18	Spring	CBH1835	63	Panel	CNS3862
19	Bracket	CNC6135	64	Spring	CBH1650
20	Bracket	CNC6136	65	Cover	ENC1452
21	Arm	CNV4358	66	Screw	BSZ23P050FMC
22	Arm	CNV4359	67	Spring	EBH1585
23	Arm	CNV4437	68	.....
24	Arm	CNV4676	69	Spacer	CNM4919
25	Panel Unit	CXA8605	70	Spacer	CNM4921
*	26 Door	CAT1762			
	27 Spring	CBH1838			
	28 Panel	CNS3768			
	29 Screw	PMS20P030FZK			
	30 Screw	BPZ20P120FZK			
	31 Button(△)	CAC4613			
	32 Button(◀)	CAC4614			
	33 Button(▶)	CAC4615			
	34 Button(⊕)	CAC4612			
	35 Button(1,2,3,4,5,6,S)	CAC4616			
	36 Button(<,>,+,-)	CAC4617			
	37 Button(TUNER,BAND)	CAC4714			
	38 Spring	CBH1836			
	39 Cover	CNS3822			
	40 Grille	CNS3832			
	41 Key Board Unit	CWM4585			
	42 Connector(CN902)	CKS2884			
	43 Connector(CN604)	CKS3362			
	44 Connector(CN901)	CKS2883			
	45 Holder	CNC6314			

KEH-1400,1450,1311,1100,1150,1300,1300SDK

- The KEH-1300/X1M/EW, KEH-1300SDK/X1M/GR, KEH-1400/X1M/IT, KEH-1450/X1M/ES, KEH-1311/X1M/UC, KEH-1100/X1M/UC and KEH-1150/X1M/ES Parts Lists enumerate the parts which differ from those enumerated in the KEH-1400/X1M/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-1400/X1M/UC Parts List is given on page 31.

Mark No.	Description	1400/X1M/UC	1450/X1M/ES	1311/X1M/UC	1100/X1M/UC	1150/X1M/ES
		Part No.	Part No.	Part No.	Part No.	Part No.
3	Cord Assy	CDE4951	CDE4951	CDE4951	CDE4908	CDE4908
7	Tuner Amp Assy	CWM4583	CWM4592	CWM4586	CWM4589	CWM4595
8	Detach Grille Assy	CXA8545	CXA8551	CXA8547	CXA8549	CXA8553
9	Cassette Mechanism Unit	EXK3435	EXK3435	EXK3435	EXK3415	EXK3415
25	Panel Unit	CXA8605	CXA8605	CXA8605	CXA8845	CXA8845
40	Grille	CNS3832	CNS3834	CNS3833	CNS3835	CNS3836
41	Key Board Unit	CWM4585	CWM4594	CWM4588	CWM4591	CWM4597
60	Auto Fuse(7.5A)	CEK1135	CEK1135	CEK1135	.....	.....
62	IC(IC551)	HA13150A	HA13150A	HA13150A	PA3029B	PA3029B

Mark No.	Description	1400/X1M/UC	1300/X1M/EW	1400/X1M/IT	1300SDK/X1M/GR
		Part No.	Part No.	Part No.	Part No.
3	Cord Assy	CDE4951	CDE4950	CDE4950	CDE4950
7	Tuner Amp Assy	CWM4583	CWM4577	CWM4577	CWM4580
8	Detach Grille Assy	CXA8545	CXA8538	CXA8540	CXA8542
16	Chassis Unit	CXA8558	CXA8558	CXA8558	CXA8662
25	Panel Unit	CXA8605	CXA8837	CXA8838	CXA8837
31	Button(△)	CAC4613	CAC4531	CAC4613	CAC4531
32	Button(◀)	CAC4614	CAC4532	CAC4614	CAC4532
33	Button(▶)	CAC4615	CAC4533	CAC4615	CAC4533
34	Button(▽)	CAC4612	CAC4539	CAC4612	CAC4539
35	Button(1,2,3,4,5,6,S)	CAC4616	CAC4591	CAC4616	CAC4591
36	Button(◀,▶,+,,-)	CAC4617	CAC4592	CAC4617	CAC459
37	Button(TUNER,BAND)	CAC4714	CAC4593	CAC4714	CAC4593
39	Cover	CNS3822	CNS3767	CNS3822	CNS3767
40	Grille	CNS3832	CNS3830	CNS3831	CNS3821
41	Key Board Unit	CWM4585	CWM4579	CWM4711	CWM4582
57	FM/AM Tuner Unit	CWE1417	CWE1416	CWE1416	CWE1416
63	Panel	CNS3862	.....	.....	.....
64	Spring	CBH1650	.....	.....	.....

13.2 CASSETTE MECHANISM UNIT

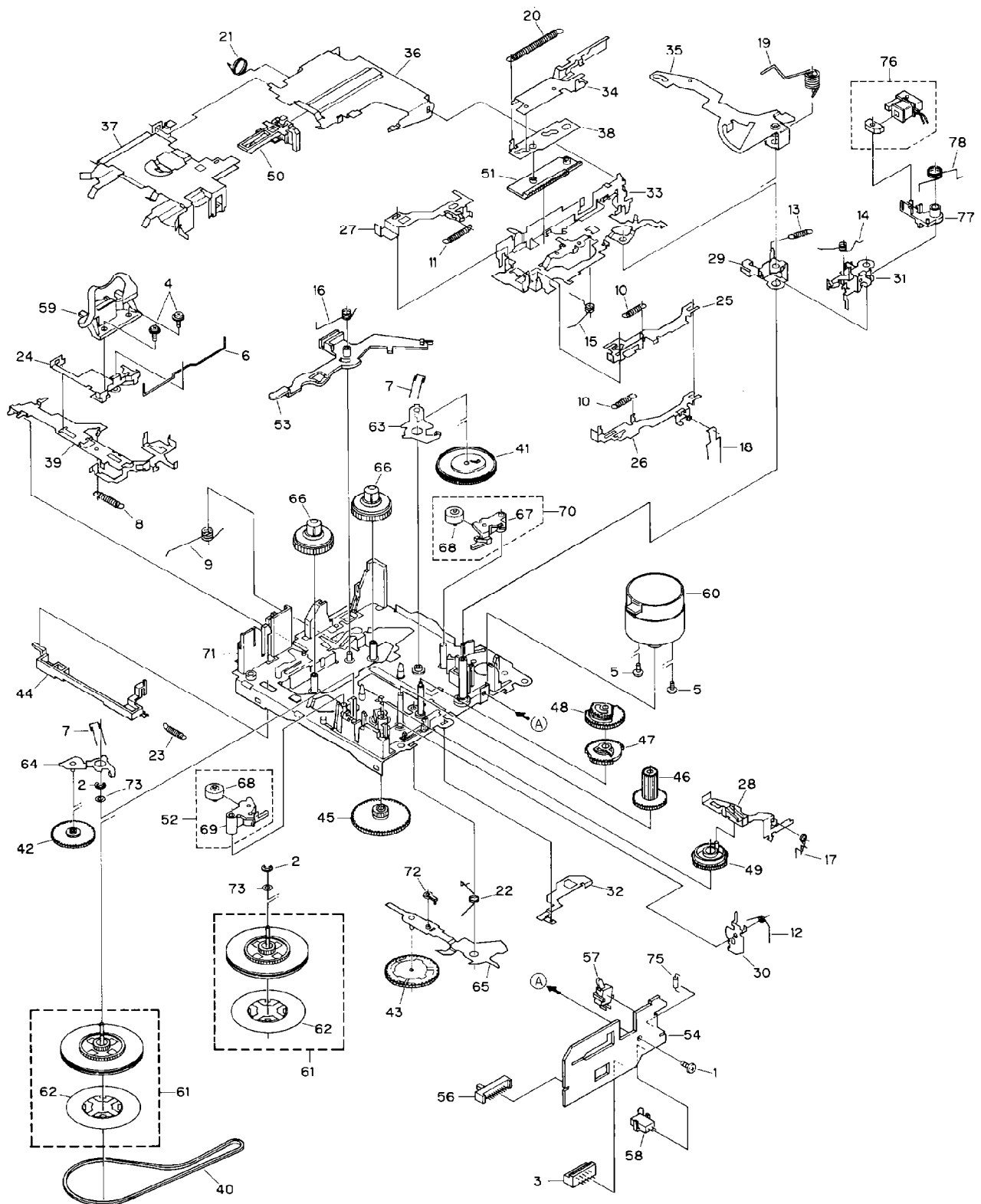


Fig. 12

● **Parts List**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ23P050FMC	46	Gear	ENV1475
2	Washer	CBG1003	47	Gear	ENV1493
3	Connector(CN1)	CKS2829	48	Gear	ENV1477
4	Screw(M2x5)	EBA1028	49	Gear	ENV1478
5	Screw(M2x2.5)	EBA1037	50	Lever	ENV1480
6	Spring	EBH1554	51	Lever	ENV1487
7	Spring	EBH1555	52	Roller Unit	EXA1461
8	Spring	EBH1556	53	Arm	ENV1489
9	Spring	EBH1557	54	P.C.Board	ENP1148
10	Spring	EBH1558	55	.....
11	Spring	EBH1559	56	Switch(FWD/REV)(S3)	ESH1006
12	Spring	EBH1560	57	Switch(Load)(S1)	ESN1016
13	Spring	EBH1561	58	Switch(Mute)(S2)	ESN1017
14	Spring	EBH1562	59	Head Assy(HD1)	EXA1443
15	Spring	EBH1563	60	Motor Unit(M1)	EXA1444
16	Spring	EBH1564	61	Flywheel Unit	EXA1468
17	Spring	EBH1565	62	Plate	ENC1423
18	Spring	EBH1566	63	Arm Unit	EXA1447
19	Spring	EBH1567	64	Arm Unit	EXA1448
20	Spring	EBH1568	65	Arm Unit	EXA1449
21	Spring	EBH1569	66	Reel Unit	EXA1450
22	Spring	EBH1571	67	Pinch Holder	ENV1466
23	Spring	EBH1579	68	Pinch Roller	ENV1488
24	Head Base	ENC1428	69	Pinch Holder	ENV1467
25	Lever	ENC1429	70	Roller Unit	EXA1460
26	Lever	ENC1430	71	Chassis Unit	EXA1465
27	Lever	ENC1431	72	Service Arm	FXX1048
28	Lever	ENC1432	73	Washer	HBF-179
29	Arm	ENC1433	74	.....
30	Arm	ENC1434	75	Diode(D1)	1SR-35-100A
31	Arm	ENC1435		(Except for KEH-1100/X1M/UC, 1150/X1M/ES)	
32	Arm	ENC1451	76	Solenoid(SO1)	EXP1012
33	Bracket	ENC1437		(Except for KEH-1100/X1M/UC, 1150/X1M/ES)	
34	Lever	ENC1438	77	Arm	ENV1491
35	Arm	FNC1439		(Except for KEH-1100/X1M/UC, 1150/X1M/ES)	
36	Frame	ENC1440	78	Spring	EBH1582
37	Holder	ENC1441		(Except for KEH-1100/X1M/UC, 1150/X1M/ES)	
38	Lever	ENC1446			
39	Lever	ENC1454			
40	Belt	ENT1027			
41	Gear	ENV1469			
42	Gear	ENV1470			
43	Gear	ENV1471			
44	Lever	ENV1472			
45	Gear	ENV1474			

14. PACKING METHOD

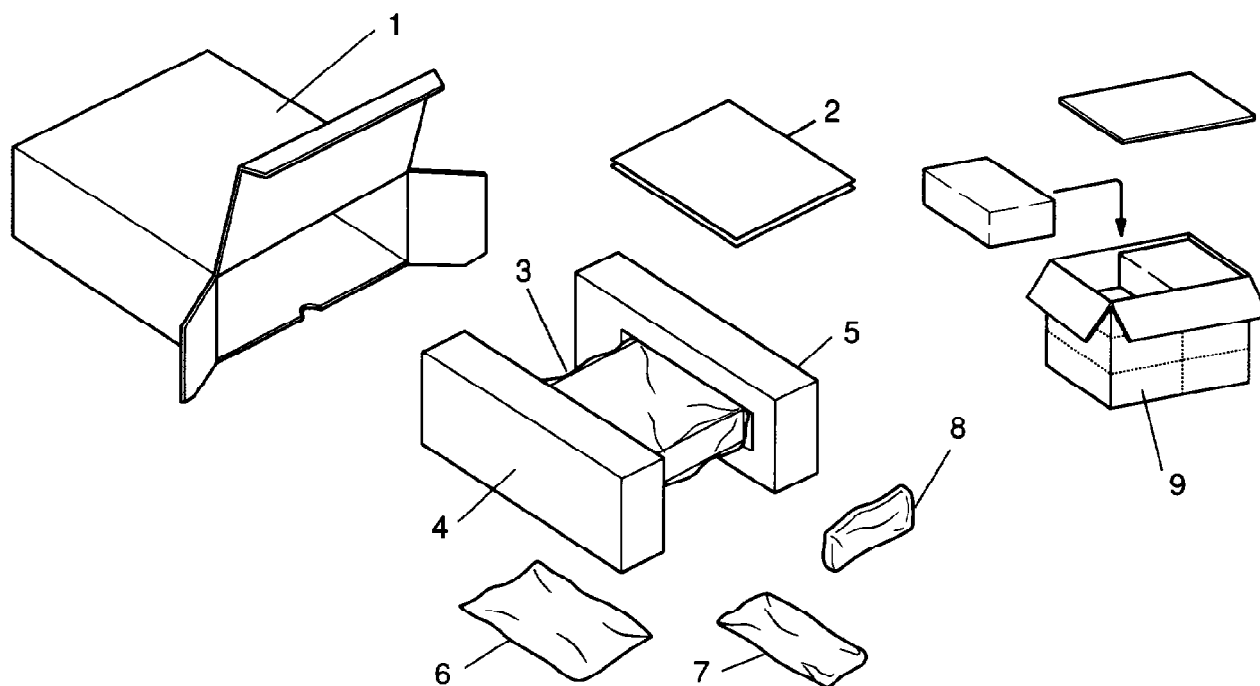


Fig. 13

● Parts List

Mark No.	Description	KEH-1400/X1M/UC Part No.	KEH-1450/X1M/ES Part No.	KEH-1311/X1M/UC Part No.	KEH-1100/X1M/UC Part No.	KEH-1150/X1M/ES Part No.
1	Carton	CHG2907	CHG2911	CHG2915	CHG2927	CHG2931
2	Owner's Manual	CRD1968	CRD1969	CRD1968	CRD1968	CRD1969
3	Polyethylene Bag	CEG1173	CEG-162	CEG1173	CEG1173	CEG-162
4	Protector(L)	CHP1607	CHP1607	CHP1607	CHP1607	CHP1607
5	Protector(R)	CHP1606	CHP1606	CHP1606	CHP1606	CHP1606
6	Accessory Assy	CEA2002	CEA2002	CEA2002	CEA2002	CEA2002
7	Cord Assy	CDE4951	CDE4951	CDE4951	CDE4908	CDE4908
8	Detach Case	CNS3860	CNS3860	CNS3860	CNS3860	CNS3860
9	Contain Box	CHL2907	CHL2911	CHL2915	CHL2927	CHL2931

Mark No.	Description	KEH-1300/X1M/EW Part No.	KEH-1400/X1M/IT Part No.	KEH-1300SDK/X1M/GR Part No.
1	Carton	CHG2895	CHG2903	CHG2899
2-1	Owner's Manual	CRD1965	.....	CRD1967
2-2	Owner's Manual	CRD1966	CRD1966	.....
2-3	Warranty Card	CRY1087	CRY1087	CRY1087
* 2-4	Passport	.....	.....	CRY1013
3	Polyethylene Bag	CEG-162	CEG-162	CEG-162
4	Protector(L)	CHP1607	CHP1607	CHP1607
5	Protector(R)	CHP1606	CHP1606	CHP1606
6	Accessory Assy	CEA1917	CEA1917	CEA1917
7	Cord Assy	CDE4950	CDE4950	CDE4950
8	Detach Case	CNS3860	CNS3860	CNS3860
9	Contain Box	CHL2895	CHL2903	CHL2899

● **Owner's Manual**

Part No.	Model	Language
CRD1968	KEH-1400/X1M/UC KEH-1311/X1M/UC KEH-1100/X1M/UC	English,French,Spanish
CRD1969	KEH-1450/X1M/ES KEH-1150/X1M/ES	English,French,Spanish,Arabic
CRD1965	KEH-1300/X1M/EW	English,Spanish,German,French
CRD1966	KEH-1300/X1M/EW KEH-1400/X1M/IT	Italian,Dutch
CRD1967	KEH-1300SDK/X1M/GR	German,French

● **Accessory Assy**

Accessory Assy CEA1917

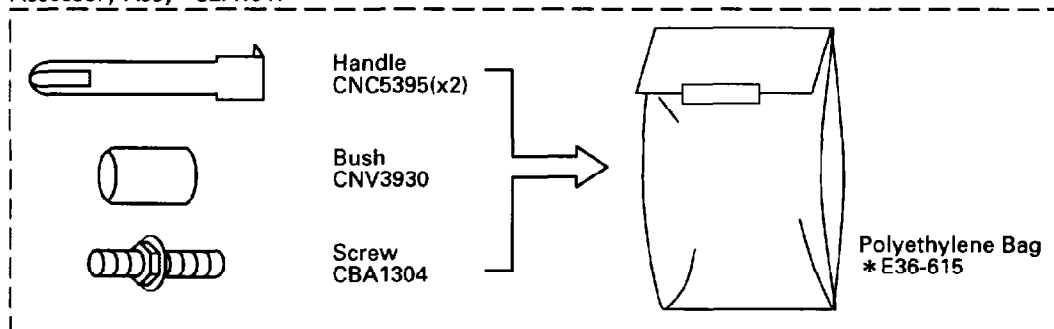


Fig. 14

Accessory Assy CEA2002

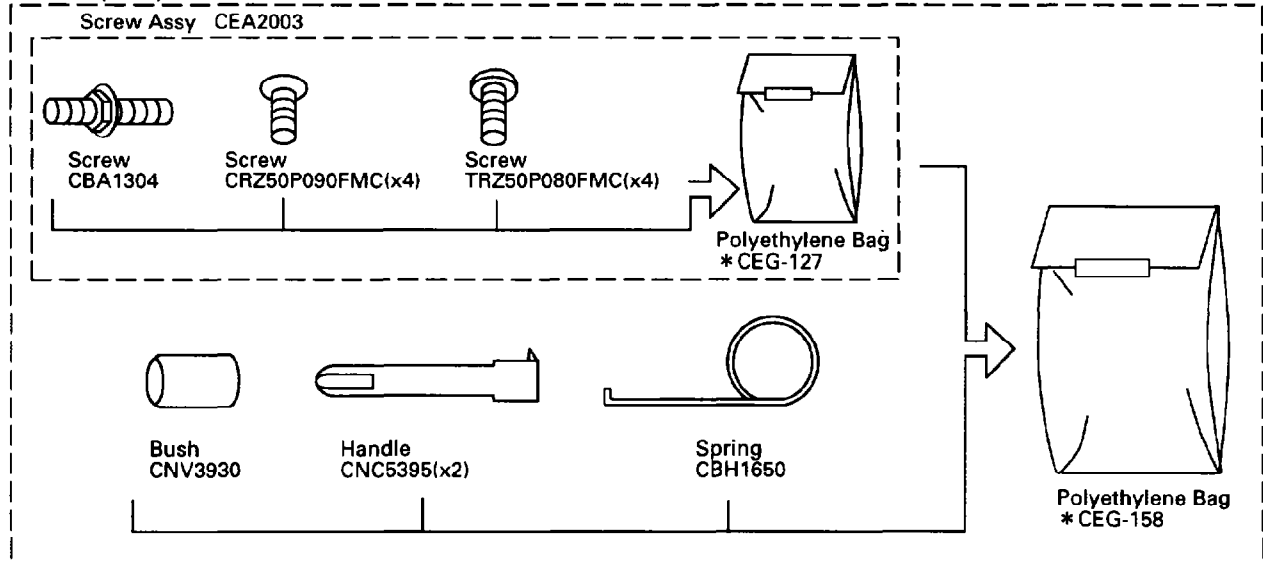


Fig. 15